

FLUIDIZED-BED REACTOR SYSTEM

ABSTRACT

[0075] A fluidized-bed reactor comprising a chamber defining a hollow interior region and having a lower surface; a first input for introducing a contaminated gas into the hollow interior region; a plurality of catalyst nanoparticles within the hollow interior region and located on the lower surface, and a fluidizing input for introducing a fluidizing material into the hollow interior region, said fluidizing input having an outlet directed at the lower surface of the chamber, wherein the introduction of the fluidizing material directed at the lower surface fluidizes at least a portion of the catalyst nanoparticles located on the lower surface to create a gaseous dispersion of catalyst nanoparticles that reacts with the contaminated gas to produce a decontaminated gas.